ADMINISTRATION OF THE BATTERY

The instructions for administration of each test of DBDA-R are given specifically and in detail on the booklets of the respective tests. Since, these are all ability tests, the utmost importance is to be given to the timings mentioned for each test on the booklets. A summary regarding the timings and number of items of each test is given in Table-5.

Table-5: Working Time and Number of Items in Each Test

Test		Working Time	No. of Items
VA	Part-I	4 mts.	15
	Part-II	3 mts. 30 secs.	9
NA		5 mts. 30 secs.	20
SA		6 mts.*	72
CA		5 mts.	20
MA		9 mts.	25
CL		3 mts.*	72
RA		5 mts.	12
PM		5 mts.	70

* time not to be disclosed to the subject.

STANDARDIZED TEST INSTRUCTIONS

All the tests in DBDA-R should follow a certain procedure, in the interest of maximally standardized measurement. Some general considerations - or points that apply to all the tests are given below followed by specific information for each test.

1) General Considerations:

a) Read aloud, and fairly slowly, the instruction page for each test, as the subject(s) read the page silently to themselves. For each test, announce:

Read the instructions for this test to yourself while I read them aloud.

Pause where example appear, to allow the subjects some time to think through the examples.

b) After the complete instructions have been read, ask the subjects:

Are there any questions before you begin?

Clarify instructions or doubts at this point, if necessary, subjects may reread parts of the instructions and review the examples, but no new examples should be given.

c) After answering questions on the instructions, the examiner should announce:

All right, turn the page and begin.

(The words here are altered in some tests, and this is made clear in the specific instructions for each test below.)

Allow about 5 seconds for turning the page, and then begin timing. When the time is up, announce in a firm voice:

Stop working now. Please put your pencils down and turn the booklet immediately.

Be sure that the subjects do not continue to work.

d) Follow working times strictly. USE A STOPWATCH OR A TEST TIMER. This fact is extremely important for all the tests. The working time is disclosed for all the tests except SA and CL, as summarized in Table - 5 earlier. The examiner should be sure he knows the time allotted to a test before he gives the signal to start. For SA and CL, it is important that the working time not be informed to the subjects. If an enquiry is made regarding the time for these tests, he/she should be replied:

Persons taking this test are not given the working time. Please continue to work until told to stop.

The timings for SA and CL are not disclosed to the subject, in order to assess the speed and accuracy under high anxiety states.

e) Emphasize that the directions such as - not going on to a PART-II or the next page until told do so are to be strictly adhered to. In a group testing situation, the examiner, or an assistant, should unobtrusively walk around the room to see that the subjects do not turn the page when they finish the test.

f) Before beginning the battery, the examiner should encourage the subjects to do their best by stressing the importance of the tests in determining what each person's strength are, and which area/course is best suited for him/her. Subjects should be reassured that they are not expected to get every item correct.

g) Allow 20 to 30 seconds break between tests. This is best done after the examinees have been told to stop working on a given test, and turn to the instructions for the next test. At this point (when examinees no longer have the test in which they were working in front of them) allow them the 20 to 30 seconds to relax, before beginning the next set of instructions.

2) Specific Instructions for all DBDA Tests:

a) *Mark only one box for an item. Items for which more than one box is marked will not be counted. If you need another pencil, etc. at any time, raise your hand.*

b) *In all the tests, you will answer a question by choosing the best option among the several. Even if you don't know the right answer for a particular item, try to narrow down the choices as much as possible and then mark the option that is your best guess.*

SCORING AND USE OF NORM TABLES

Directions for scoring

The scoring procedure in DBDA-R is very objective and simple. Separate stencil keys are available for each test to be placed on the answer sheet. Complete instructions for obtaining the raw scores are given on these stencils themselves. Before the scoring keys are used some general guidelines are to be observed to maintain the validity of the test. Such as:

Ø see that only one response is marked for each item and that it is marked clearly;

Ø reject those answer sheets that show obvious response patterns such as all of the answers in one column, or alteration of left and right responses in all the tests, etc.;

Ø see that maximum the items have been answered within the specified time limit.

Meaning and use of Norms

The meaning and use of the raw scores after they have been found is the primary consideration of the test user. Since measurement in psychology is usually not on an absolute scale, the best that most measures can give is the relative standing of one individual with another, or with a group of individuals.

Two general approaches to examining these relationships are available, and in both cases, the raw scores typically undergo certain transformations. In the first approach, the test user transforms the raw scores for the group of individuals he has tested into some sort of standard score or centile, and then makes comparisons among the individuals in that group, or makes them between this group and another that he may have previously tested.

In the second approach, the test user transforms the raw scores again, to some type of standard score, but this time he compares the individual, or infact, the whole group, to a population whose typical response pattern is known. In both cases, the question is: "how does this individual stands compared to others in the population?" In the former case, the population is quite specific to the aims of the test user. For example, he may have collected his data from management trainees, and may wish to compare the ability profiles of each sex. In the latter case, the population is one whose abilities have been investigated and reliability measured to the degree that it might be said with some confidence, that a particular level of some ability either is, or is not characteristic of that population. An example would be the population of all boys of high and senior school level. 'Norms', however, need not necessarily refer to 'normal' populations, but only to populations about which some minimum degree of knowledge is available. Obviously, in the early stages of a test's use the most commonly available norms are for the general 'normal' population.

Transformation of raw scores

The type of standard scores used with this is the STEN - a unit on a standard ten-point scale. Although sten will appeal to most users, it is important that each investigator have access to the kind of standardized score he desires. The values of raw scores means and standard deviations (from which stens can be derived) are given in a tabular form in the following pages.

Directions for obtaining the raw scores from the answer sheet are provided on the scoring keys themselves. Here, we shall assume that the raw scores have already been obtained and that sten are desired. Standardization tables are given for three groups:

1. School students (Jr. & Sr.)
2. College students
3. General adult population.

The sizes of the sample and the means and standard deviations of raw scores are given in each table. The sample in the school students group consists of boys and girls of ninth standard to twelfth standard, within the age range of 14 to 17 years. Separate tables for each class (9th, 10th, 11th and 12th) have been constructed. The sample in the college students group consists of males and females undergoing their graduation or post-graduation courses, within the age range of 18 to 22 years. No separate tables for class wise distribution have been constructed for this group of norms. Finally, the sample in the general adult population consists of mainly the occupational groups, students, and housewives, within the age range of 22 to 30 years.

It should be noted that all the groups mentioned above have separate norm tables for males (or boys) and females (or girls), along with the "male-female combined" tables. The need for combined norms applicable to both sexes simultaneously has greatly increased in recent years, due to progressive desegregation of the sexes in vocations and college curricula. Men and women nowadays are applying in nearly equal proportions, for admissions to various colleges hitherto restricted largely to one sex or the other; jobs are increasingly becoming open to men and women on an equal basis. Thus, more and more often, situations arise in which individuals have to be appraised without regard to sex-whether it be for the award of scholarships or for selection and allocation of employees to different job openings. In such situations it may be preferable to use combined-sex norm tables in order to avoid discrimination on the basis of sex.

Once the test administrator has decided which table or tables will be most appropriate for his data, the use of the tables is quite easy. The values within the table (i.e., the body of the table) are "raw scores" - the values obtained with the scoring key(s). To convert these raw scores into sten scores, find the raw score for VA in the 'VA' line and read the corresponding sten score above it. Do likewise for other ability areas also.

For example, if a girl of 9th standard, whose scores are to be converted by Table-7 had obtained a raw scores of 14 on VA, 9 on NA, 37 on SA, etc., her corresponding sten scores would be 10 on VA, 8 on NA, and 7 on SA.

In summary, the procedures for obtaining sten scores are:

1. Obtain raw scores from the answer sheet.

2. Select the appropriate norm table.

3. Convert each raw score to its sten equivalent as described above.

Table-6: Norms for 9th Standard BOYS

Ability	Sten Scores											Mean	SD
	1	2	3	4	5	6	7	8	9	10			
CA	0-1	2	3	4	5	6	-	7	8	9-20	CA	5.25	1.73
CL	0-8	9-13	14-17	18-21	22-26	27-30	31-34	35-38	39-43	44-72	CL	26.06	8.59
MA	0-3	4	5-6	7	8-9	10	11-12	13	14-15	16-25	MA	9.12	3.00
NA	0-1	2	3	4	-	5	6	7	8	9-20	NA	4.92	1.62
PM	0-6	7-10	11-13	14-16	17-20	21-23	24-27	28-30	31-33	34-70	PM	20.35	6.71
RA	0-1	-	2	3	-	4	5	-	6	7-12	RA	3.88	1.28
SA	0-11	12-17	18-23	24-29	30-35	36-40	41-46	47-52	53-58	59-72	SA	35.04	11.56
VA	0-1	2	3	4	5	6	7	8	9	10-24	VA	5.81	1.91
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 13.5-14.5 years, N = 164

Table-7: Norms for 9th Standard GIRLS

Ability	Sten Scores											Mean	SD
	1	2	3	4	5	6	7	8	9	10			
CA	0-2	3	4	5-6	7	8	9	10	11-12	13-20	CA	7.25	2.39
CL	0-10	11-15	16-20	21-25	26-30	31-35	36-39	40-44	45-49	50-72	CL	30.05	9.91
MA	0-2	3	4	5	6	7	8	9	10	11-25	MA	6.42	2.11
NA	0-2	3	4	5	6	7	8	9	10	11-20	NA	6.20	2.04
PM	0-8	9-13	14-17	18-21	22-26	27-30	31-34	35-39	40-43	44-70	PM	26.14	8.63
RA	0-1	-	2	3	4	-	5	-	6	7-12	RA	3.95	1.30
SA	0-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-72	SA	30.24	9.97
VA	0-2	3	4	5-6	7	8	9	10	11-12	13-24	VA	7.88	2.40
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 13.5-14.5 years, N = 172

Table-8: Norms for 9th Standard BOYS & GIRLS (Combined)

					Sten Scores								
Ability	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		**Mean**	**SD**
CA	0-2	3	4	5	6	7	8	9	10	11-20	CA	6.25	2.06
CL	0-9	10-14	15-18	19-23	24-28	29-32	33-37	38-41	42-46	47-72	CL	28.05	9.25
MA	0-2	3	4-5	6	7	8-9	10	11	12	13-25	MA	7.77	2.56
NA	0-1	2	3	4	5	6	7	8	9	10-20	NA	5.56	1.83
PM	0-7	8-11	12-15	16-19	20-23	24-27	28-30	31-34	35-38	39-70	PM	23.24	7.67
RA	0-1	-	2	3	-	4	5	-	6	7-12	RA	3.91	1.29
SA	0-11	12-16	17-21	22-27	28-32	33-38	39-43	44-48	49-54	55-72	SA	32.64	10.77
VA	0-2	3	4	5	6	7	8	9	10	11-24	VA	6.54	2.15
					Sten Scores								
Ability	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		**Mean**	**SD**

Age Range: 13.5-14.5 years, N = 336

Table-9: Norms for 10th Standard BOYS

					Sten Scores								
Ability	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		**Mean**	**SD**
CA	0-1	2	3	4	5	6	7	8	9	10-20	CA	5.72	1.88
CL	0-9	10-14	15-18	19-23	24-28	29-32	33-37	38-42	43-46	47-72	CL	28.16	9.29
MA	0-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18	19-25	MA	11.42	3.76
NA	0-2	3	4	5	6	7	8	9-10	11	12-20	NA	6.72	2.21
PM	0-7	8-10	11-14	15-17	18-21	22-24	25-28	29-31	32-35	36-70	PM	21.25	7.01
RA	0-1	2	-	3	4	-	5	-	6	7-12	RA	4.01	1.32
SA	0-12	13-18	19-24	25-31	32-37	38-43	44-49	50-55	56-61	62-72	SA	37.14	12.25
VA	0-2	3	4	5-6	7	8	9	10-11	12	13-24	VA	7.41	2.44
					Sten Scores								
Ability	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		**Mean**	**SD**

Age Range: 14.5-15.5 years, N = 198

Table-10: Norms for 10th Standard GIRLS

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-2	3-4	5	6	7-8	9	10	11-12	13	14-20	CA	8.25	2.72
CL	0-10	11-16	17-21	22-26	27-32	33-37	38-42	43-47	48-53	54-71	CL	32.05	10.57
MA	0-2	3	4	5	6-7	8	9	10	11	12-25	MA	7.10	2.34
NA	0-2	3	4	5	7	8	9	10	11	12-20	NA	7.21	2.37
PM	0-8	9-13	14-17	18-21	22-26	27-30	31-34	35-39	40-43	44-70	PM	24.29	8.01
RA	0-2	-	3	-	4	-	5	-	6	7-12	RA	4.25	1.04
SA	0-11	12-16	17-21	22-27	28-32	33-37	38-43	44-48	49-53	54-72	SA	32.42	10.69
VA	0-2	3-4	5	6-7	8	9-10	11	12-13	14	15-24	VA	8.82	2.91
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 14.5-15.5 years, N = 176

Table-11: Norms for 10th Standard BOYS & GIRLS (Combined)

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-2	3	4	5	6	7-8	9	10	11	12-20	CA	6.98	2.30
CL	0-10	11-15	16-20	21-255	26-30	31-35	36-40	41-44	45-49	50-72	CL	30.10	9.93
MA	0-3	4	5-6	7	8-9	10	11-12	13	14-15	16-25	MA	9.26	3.05
NA	0-2	3	4	5	6	7-8	9	10	11	12-20	NA	6.96	2.29
PM	0-7	8-11	12-15	16-19	20-22	23-26	27-30	31-34	35-37	38-70	PM	22.77	7.51
RA	0-1	2	-	3	4	-	5	6	-	7-12	RA	4.13	1.36
SA	0-11	12-17	18-23	24-29	30-34	35-40	41-46	47-51	52-57	58-72	SA	34.78	11.47
VA	0-2	3-4	5	6	7-8	9	10	11-12	13	14-24	VA	8.11	2.67
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 14.5-15.5 years, N = 374

Table-12: Norms for 11th Standard BOYS

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
	Sten Scores												
CA	0-2	3	4-5	6	7	8	9	10-11	12	13-20	CA	7.52	2.48
CL	0-10	11-15	16-20	21-25	26-30	31-35	36-39	40-44	45-49	50-72	CL	30.06	9.91
MA	0-4	5-6	7-9	10-11	12-13	14-15	16-17	18-20	21-22	23-25	MA	13.44	4.43
NA	0-2	3-4	5	6	7-8	9	10	11-12	13	14-20	NA	8.12	2.67
PM	0-7	8-11	12-15	16-19	20-22	23-26	27-30	31-34	35-37	38-70	PM	22.78	7.51
RA	0-1	2	3	4	5	-	6	7	8	9-12	RA	5.11	1.68
SA	0-13	14-19	20-26	27-32	33-39	40-45	46-52	53-58	59-65	66-72	SA	39.24	12.94
VA	0-3	4	5-6	7	8-9	10	11-12	13-14	15	16-24	VA	9.41	3.10
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 15.5-16.5 years, N = 174

Table-13: Norms for 11th Standard GIRLS

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
	Sten Scores												
CA	0-3	4	5-6	7	8-9	10	11-12	13	14-15	16-20	CA	8.42	2.77
CL	0-11	12-17	18-22	23-28	29-34	35-39	40-45	46-51	52-56	57-72	CL	31.65	9.29
MA	0-3	4	5-6	7	8-9	10	11-12	13	14-15	16-25	MA	8.52	2.81
NA	0-2	3-4	5	6-7	8	9	10-11	12	13-14	15-20	NA	8.01	2.64
PM	0-8	9-13	14-17	18-21	22-26	27-30	31-34	35-39	40-43	44-70	PM	24.20	7.98
RA	0-1	2	3	4	5	6	7	8	9	10-12	RA	5.61	1.85
SA	0-12	13-18	19-24	25-31	32-37	38-43	44-49	50-55	56-61	62-72	SA	32.62	11.42
VA	0-3	4-5	6-7	8-9	10	11-12	13-14	15-16	17	18-24	VA	10.15	3.34
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 15.5-16.5 years, N = 212

Table-14: Norms for 11th Standard BOYS & GIRLS (Combined)

	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
CA	0-2	3-4	5	6	7	8-9	10	11	12-13	14-20	CA	7.97	2.63
CL	0-10	11-15	16-20	21-25	26-30	31-35	36-41	42-46	47-51	52-72	CL	30.85	10.18
MA	0-3	4-5	6-7	8-9	10	11-12	13-14	15-16	17-18	19-25	MA	10.18	3.62
NA	0-2	3-4	5	6	7-8	9	10	11-12	13	14-20	NA	8.06	2.66
PM	0-7	8-11	12-15	16-19	20-23	24-27	28-31	32-35	36-38	39-70	PM	23.49	7.75
RA	0-1	2	3	4	5	6	7	-	8	9-12	RA	5.36	1.76
SA	0-12	13-18	19-24	25-30	31-35	36-41	42-47	48-53	54-59	60-72	SA	35.93	11.85
VA	0-3	4	5-6	7-8	9	10-11	12	13-14	15-16	17-24	VA	9.78	3.22
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 15.5-16.5 years, N = 386

Table-15: Norms for 12th Standard BOYS

	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
CA	-	0-1	2-4	5-6	7-8	9-11	12-13	14-15	16-18	19-20	CA	8.72	4.70
CL	0-10	11-16	17-21	22-26	27-31	32-36	37-42	43-47	48-52	53-72	CL	31.76	10.48
MA	0-4	5-7	8-9	10-12	13-14	15-16	17-19	20-21	22-24	25	MA	14.51	4.78
NA	-	0-1	2-4	5-6	7-8	9-11	12–13	14-16	17-18	19-20	NA	9.00	4.85
PM	0-8	9-12	13-16	17-19	20-23	24-27	28-31	32-35	36-39	40-70	PM	23.90	7.88
RA	0-1	2	3	4	5	6	7	8	-	9-12	RA	5.39	1.77
SA	0-15	16-22	23-28	29-34	35-40	41-47	48-53	54-59	60-66	67-72	SA	41.00	12.65
VA	-	1	2-4	5-7	8-10	11-13	14-16	17-18	19-21	22-24	VA	10.45	5.65
	Sten Scores												
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 16.5-17.5 years, N = 200

Table-16: Norms for 12th Standard GIRLS

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	CA	9.54	3.14
CL	0-11	12-17	18-23	24-29	30-35	36-40	41-46	47-52	53-58	59-72	CL	32.68	10.78
MA	0-3	4-5	6	7-8	9-10	11	12-13	14-15	16	17-25	MA	9.46	3.12
NA	-	0-2	3-5	6-7	8-9	10-11	12-13	14-16	17-18	19-20	NA	8.24	2.71
PM	0-9	10-14	15-18	19-23	24-28	29-32	33-37	38-41	42-46	47-70	PM	26.32	8.68
RA	0-2	3	4	5	6	7	8	9	10	11-12	RA	6.02	1.98
SA	0-11	12-18	19-25	26-32	33-39	40-46	47-53	54-60	61-67	68-72	SA	36.71	12.11
VA	-	0-3	4-5	6-8	9-10	11-13	14-16	17-18	19-21	22-24	VA	10.15	3.34
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 16.5-17.5 years, N = 184

Table-17: Norms for 12th Standard BOYS & GIRLS (Combined)

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-3	4	5-6	7	8-9	10	11-12	13	14-15	16-20	CA	9.13	3.01
CL	0-10	11-16	17-21	22-26	27-32	33-37	38-42	43-48	49-53	54-72	CL	32.22	10.63
MA	0-4	5-6	7-8	9-10	11	12-13	14-15	16-17	18-19	20-24	MA	11.98	3.95
NA	0-2	3-4	5	6-7	8	9-10	11	12	13-14	15-20	NA	8.62	2.84
PM	0-8	9-12	13-16	17-20	21-25	26-29	30-33	34-37	38-41	42-70	PM	25.11	8.28
RA	0-1	2	3	4	5	6	7	8	9	10-12	RA	5.70	1.88
SA	0-13	14-19	20-26	27-32	33-38	39-45	46-51	52-58	59-64	65-72	SA	38.85	12.82
VA	0-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-24	VA	10.30	3.99
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 16.5-17.5 years, N = 384

Table-18: Norms for College Students MALES

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
					Sten Scores								
CA	0-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18	19-20	CA	11.43	3.77
CL	0-14	15-21	22-28	29-35	36-42	43-49	50-56	57-63	64-70	71-72	CL	42.25	13.94
MA	0-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25	MA	16.52	4.13
NA	0-6	7	8-9	10-11	12	13-14	15	16-17	18	19-20	NA	12.62	3.15
PM	0-11	12-16	17-22	23-27	28-33	34-38	39-44	45-49	50-54	55-70	PM	33.14	10.93
RA	0-2	3	4	5	6	7-8	9	10	11	12	RA	6.99	2.30
SA	0-22	23-28	29-34	35-40	41-46	47-52	53-59	60-65	66-71	72	SA	46.82	12.20
VA	0-4	5-7	8-9	10-11	12-14	15-16	17-19	20-21	22-23	24	VA	14.30	4.71
					Sten Scores								
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 18-22 years, N = 270

Table-19: Norms for College Students FEMALES

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
					Sten Scores								
CA	0-6	7-8	9	10-11	12	13-14	15-16	17	18-19	20	CA	8.72	3.21
CL	0-22	23-27	28-33	34-39	40-44	45-50	51-55	56-61	62-66	67-72	CL	31.76	11.16
MA	0-5	6-7	8	9-10	11	12	13-14	15	16-17	18-25	MA	14.51	2.86
NA	0-3	4-5	6	7-8	9-10	11	12-13	14-15	16-17	18-20	NA	9.00	3.38
PM	0-11	12-17	18-23	24-28	29-34	35-40	41-46	47-51	52-57	58-70	PM	34.64	11.43
RA	0-3	4	5	6	7	8	9	10	11	12	RA	7.19	1.99
SA	0-21	22-26	27-31	32-36	37-42	43-47	48-52	53-58	59-63	64-72	SA	42.20	10.55
VA	0-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-24	VA	12.35	4.07
					Sten Scores								
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 18-22 years, N = 245

Table-20: Norms for College Students MALES & FEMALES (Combined)

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-6	7	8-9	10	11-12	13	14-15	16	17-18	19-20	CA	12.13	3.03
CL	0-19	20-25	26-31	32-38	39-44	45-51	52-57	58-63	64-70	71-72	CL	44.65	12.73
MA	0-7	8	9-10	11-12	13	14-15	16-17	18-19	20	21-25	MA	13.99	3.49
NA	0-5	6-7	8	9-10	11	12	13-14	15	16-17	18-20	NA	11.44	2.85
PM	0-16	17-20	21-25	26-29	30-33	34-37	38-41	42-45	46-50	51-70	PM	33.39	8.34
RA	0-3	4	5	6	7	-	8	9	10	11-12	RA	7.09	1.77
SA	0-22	23-27	28-33	34-39	40-44	45-50	51-55	56-61	62-66	67-72	SA	44.62	11.12
VA	0-6	7-8	9	10-11	12-13	14	15-16	17-18	19	20-24	VA	13.32	3.33
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 18-22 years, **N = 515**

Table-21: Norms for General Adult Population MALES

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
						Sten Scores							
CA	0-6	7-8	9	10-11	12-13	14	15-16	17-18	19	20	CA	13.30	3.32
CL	0-27	28-32	33-38	39-43	44-48	49-53	54-59	60-64	65-69	70-72	CL	48.65	10.61
MA	0-10	11	12-13	14-15	16-17	18-19	20	21-22	23-24	25	MA	17.25	3.51
NA	0-9	10	11	12-13	14	15	16	17-18	19	20	NA	14.44	2.51
PM	0-18	19-22	23-27	28-32	33-36	37-41	42-45	46-50	51-54	55-70	PM	36.66	9.16
RA	0-3	4	5	6	7	8	9	10	-	11-12	RA	7.29	1.82
SA	0-27	28-32	33-37	38-42	43-48	49-53	54-58	59-63	64-68	69-72	SA	48.02	10.42
VA	0-9	10-11	12-13	14	15-16	17	18-19	20-21	22	23-24	VA	16.32	3.18
						Sten Scores							
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 23-30 years, **N = 275**

Table-22: Norms for General Adult Population FEMALES

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
					Sten Scores								
CA	0-8	9	10-11	12	13-14	15	16-17	18	19	20	CA	14.22	2.85
CL	0-28	29-33	34-38	39-44	45-49	50-54	55-60	61-65	66-70	71-72	CL	49.55	10.61
MA	0-6	7	8-9	10	11-12	13	14-15	16	17-18	19-25	MA	12.05	3.01
NA	0-5	6-7	8-9	10	11-12	13	14-15	16	17-18	19-20	NA	12.20	3.11
PM	0-19	20-24	25-28	29-33	34-38	39-43	44-48	49-52	53-57	58-70	PM	38.42	9.60
RA	0-3	4	5	6	7	-	8	9	10	11-12	RA	7.32	1.30
SA	0-22	23-27	28-33	34-38	39-44	45-49	50-55	56-60	61-66	67-72	SA	44.21	11.05
VA	0-7	8-9	10-11	12-13	14-15	16-17	18	19-20	21-22	23-24	VA	15.20	3.80
					Sten Scores								
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 23-30 years, N = 265

Table-23: Norms for General Adult Population MALES & FEMALES (Combined)

Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD
					Sten Scores								
CA	0-7	8-9	10	11-12	13	14-15	16	17-18	19	20	CA	13.76	2.94
CL	0-28	29-33	34-38	39-43	44-49	50-54	55-59	60-64	65-69	70-72	CL	49.10	10.27
MA	0-7	8-9	10-11	12	13-14	15-16	17-18	19	20-21	22-25	MA	14.65	3.51
NA	0-6	7-8	9	10-11	12-13	14	15-16	17-18	19	20	NA	13.32	3.33
PM	0-18	19-23	24-28	29-32	33-37	38-42	43-46	47-51	52-56	57-70	PM	37.54	9.38
RA	0-3	4	5	6	7	-	8	9	10	11-12	RA	7.30	1.31
SA	0-23	24-28	29-34	35-40	41-46	47-51	52-57	58-63	64-69	70-72	SA	46.11	11.52
VA	0-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22-23	24	VA	15.76	3.94
					Sten Scores								
Ability	1	2	3	4	5	6	7	8	9	10		Mean	SD

Age Range: 23-30 years, N = 540

ABOUT DBDA (David's Battery of Differential Abilities)

Generally, a sten score of 4, 5, 6, or 7 indicates an average level of ability of an individual. Whereas, sten scores of 1, 2, or 3 are typically found in individuals having very poor ability in that area. However, a score of 8, indicates a high ability and skill in that area. Finally, stens of 9 and 10 are extremely high and can be treated as good predictors of success involving that particular ability. The description of these sten scores for each ability are given in a tabular form as following:

VERBAL ABILITY

Sten Score	Description
1-3	Below average knowledge and understanding of words and their use in day to day applications. The subject is unable to understand English vocabulary of average difficulty level. Therefore, has a below average ability to apply English usage in practical life.
4-7	Average verbal ability to understand and apply English language in an unstructured form. Has an average ability to comprehend English vocabulary and verbal skills for usage in practical applications.
8-10	High verbal ability in comprehension and use of English words and language. The subject has an extremely good vocabulary and intelligibility in its profound grasping of the relationships among words.

NUMERICAL ABILITY

Sten Score	Description
1-3	Below average facility in handling numbers and their use in day to day applications. The subject has a below average ability to make rapid calculations in simple arithmetic problems.
4-7	Average numerical ability showing fluency in fundamental numerical operations. The subject has an average ability to understand and apply rapid numerical solutions to computational tasks.
8-10	High ability to wield numerical operations rapidly and accurately. Has a high skill to manipulate numbers quickly and accurately, and perform well in accounting, technical, and data processing kind of tasks .

SPATIAL ABILITY

Sten Score	Description
1-3	Poor ability to perceive relationships and arrangements among visual patterns. Unable to perceive small details in spatial relations.
4-7	Average ability to perceive spatial patterns clearly, following the orientation of figures when their position is altered or even in an disoriented visual pattern.
8-10	Extremely high ability to understand spatial relations and grasp relationships among two-dimensional figures. Can be successful in tasks dealing with architecture, commercial art, dress-designing, etc.

CLOSURE ABILITY

Sten Score	Description
1-3	Below average ability to perceive things in an organized and meaningful manner.
4-7	Average ability to form a perceptual cluster from a number of vague or jumbled data present in the surroundings. Can perceive meaningful blocks and organize them.
8-10	Extremely high ability to understand and grasp relationships among incomplete stimuli. The subject has a highly motivated or goal directed observation along with rapid perceptual accuracy to comprehend the surroundings. Can do well in such situations.

CLERICAL ABILITY

Sten Score	Description
1-3	Poor ability for perceptual activities involving rapid evaluations of features of visual stimuli.
4-7	Average ability to perform with speed and accuracy in a monotonous task. Is likely to make some errors in tasks involving repeated activity for long periods.
8-10	Extremely high ability to work with rapid speed and accuracy in tasks which do not require "higher level" of intellectual activity. Can be successful in tasks involving record-keeping, filing, dispatching, coding, and other similar jobs.

REASONING ABILITY

Sten Score	Description
1-3	Below average ability to deduce logical principle underlying any relationship among concepts.
4-7	Average ability to apply logical reasoning from some specific information to a general principle.
8-10	Extremely high ability to understand and grasp relationships among unknown stimuli. The subject has an excellent ability to apply the process of induction or logical reasoning in order to comprehend relationships. Can do well in such activities which involve logical thinking such as computer programming, engineering, scientific technology, or mathematics related pursuits.

MECHANICAL ABILITY

Sten Score	Description
1-3	Poor understanding of basic mechanical principles underlying simple machines, tools, electrical, and automotive operations.
4-7	Average ability to succeed in performance of technical vocational areas. Is somewhat aware of the information on basic mechanical principles.
8-10	Extremely high mechanical ability to understand technical aspects of machines, tools, and automotive facts, etc. Can be successful in tasks concerned with machinery, electrical/electronic jobs, carpentry, or engineering technologies.

PSYCHO-MOTOR ABILITY

Sten Score	Description
1-3	Below average eye-hand coordination under speeded conditions.
4-7	Average ability to maintain a fine-muscle dexterity in manual tasks.
8-10	Extremely high psycho-motor ability to perform accurately under speeded conditions. Has an excellent fine-muscle dexterity for manual tasks. Can be successful in assembly line work, drafting, and clerical jobs.

APPLICATIONS OF DBDA-R RESULTS

The uses of aptitude/ability test results fall into two general categories: a) counselling with individuals, and b) in making administrative decisions about individuals or groups. It is important to keep these two uses separate wherever they are applied: in schools, industry, business, social agencies, or elsewhere. Both functions, however, require quite similar kinds of information.

In schools, in social agencies, and in private consultation work, individuals are given aptitude tests and other tests. This testing is an integral and accepted part of the fact-finding phase of counselling. Modern schools provide individual counselling for each student with respect to his educational and vocational needs. Such schools also organize guidance programs which give the necessary information concerning each student's decision regarding his educational and vocational career.

The administrative use of DBDA-R scores relates to discipline - scholastic or behavioural. Sometimes the staff lacks a sufficient amount of information when it is necessary to make decisions regarding students who are in difficulties. Thus, comprehensive measures of aptitude, along with standard measures of achievement and the school record itself, provide factual basis of great importance for reaching a sound clinical decision regarding the problems of conduct or scholarship of a student.

The DBDA-R tests are primarily counselling instruments. For this purpose, scores on combination of several tests provide critical information. Increased emphasis on early identification of exceptionally gifted children has brought about a secondary use of DBDA-R. Usually, this has come about as a by-product of the administration of the entire battery. In some situations, combinations of DBDA-R scores can be used to select students for admission in various courses, to place students in special curricular groups or to identify students for positive reinforcement to continue their education and training.

Results from aptitude and ability testing scales are generally published in some type of graphic format so as to portray the magnitude of the scores for the test variables being measured. Typically, then, the interpretation of the test results necessitates rather extensive professional study and preparation prior to explaining the complex and unique meaning of the test profiles to test takers. Because of the additional cost involved in preparing non-technical presentation of the findings, the subjects are seldom provided with a narrative summary of the test information for their ready reference, review, and deliberation after counselling.

The trend in recent years has been to rely more and more on computers to score, retrieve, and also to interpret test data as an aid to the professionals in this area. In concert with this trend, we undertook efforts to design the format and specify the program logic basic to the generation of an aptitude/ability oriented profile report. Such reports enables both professionals like counsellors, school psychologists, etc., and the test takers (subjects) to have available with them a computer produced non-technical, and objective narrative interpretation report of their aptitude/ability. These interpretive reports can further be used for additional purposes like personal assessment program, career counselling, and developmental planning purposes by the school psychologist.

For school students, the software also gives specific scores for Science, Commerce, and Humanities, along with the occupational opportunities available in each category for each student as per the aptitude/ability scores.

The two principle objectives during the development of the above DBDA-R analysis report were to provide unique and innovative supplement to career guidance and personnel development counselling which:

- Helps clients achieve accurate insight about themselves by utilizing a report written in objective and non-technical language which is helpful to people as it is not biased, critical, evaluative, or confusing to them.

- Helps career counsellors, and other professionals from the routine, time consuming, and tedious elements of diagnostic, interpretive, and report writing process of counselling and therapy.